UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,505	12/12/2003	Brock Estel Osborn	124128-1	1898

6147   7590   03/31/2008
GENERAL ELECTRIC COMPANY
GLOBAL RESEARCH
PATENT DOCKET RM. BLDG. K1-4A59
NISKAYUNA, NY 12309

EXAMINER
MUSA, ABDELNABI O

ART UNIT	PAPER NUMBER
2146	

NOTIFICATION DATE	DELIVERY MODE
03/31/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ldocket@crd.ge.com
rosssr@crd.ge.com
parkskl@crd.ge.com

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _12 December 2003_.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
    closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-30_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-30_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _12 December 2003_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
            application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Title

1.   The title of the invention is not descriptive. A new title is required that is clearly

indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form

the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (e) The invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2.   Claim(s) 1-5, 9-17 and 30 are rejected under 35 U.S.C. 102(e) as being

anticipated by Gelvin et al. Patent No.: (US 7,020,701 B1).

As per **claim 1**, Gelvin et al. teaches an apparatus for monitoring the

performance of a distributed system (an apparatus for monitoring and controlling the

performance of a distributed system; Abstract; Col. 6, Line 52; Col. 14, line 10; Col. 24,

Line 44), said distributed system comprising a plurality of cooperating units disposed in

a communications network (application in transportation, health care systems and

others contain a plurality of units; Abstract; Col. 3, Line 9; Col. 6, line 54), wherein said

apparatus comprises:

a plurality of diagnostic components, wherein each unit of said system comprises at least one of said diagnostic components, and wherein each diagnostic component further comprises (a plurality of diagnostic components are used in each unit to read and observe algorithms and situations of each unit Col. 38, line 12; Col. 66, line 5; Col. 73, Line 14; Col. 18, Line 13)

      a.   at least one sensor for sensing at least one unit performance characteristic and representing said at least one characteristic as raw data (a sensor for gathering information about a unit performance Col. 1, Line 47; Col. 2, Line 38; Col. 4, Line 7; Col. 7, line 28; FIGs. 3-7);

      b.   a data reduction module adapted to receive and process said raw data produced by said at least one sensor to generate reduced data (data reduction to generate reduced data and improve performance Col. 54, Line 2; Col. 52, Line 58);

      c.   a transceiver adapted to receive said reduced data from said data reduction module and to transmit and receive said reduced data to and from said plurality of units using said network (frequency hopped spread spectrum transceivers are employed to receive and transmit data from unites Col. 25, Line 13; Col. 4, Line 43; Col. 59, Line 3 and respective FIGs); and

      d.   a data analysis module adapted to accept and analyze said reduced data from said transceiver to produce performance data related to said distributed system (data analysis module a mechanism that enables code execution to process data and produce performance Col. 17, Line 37; Col. 22, line 61)

As per **claim 2**, Gelvin et al. teaches the apparatus of claim 1, wherein said data analysis module utilizes said performance data to estimate a remaining lifetime of said distributed system (data analysis estimate the lifetime of the system in different levels of the database Col. 34, Line 64; Col. 37, Line 33; Col. 51, Line 30; Col. 65, Line 47).

As per **claim 3**, Gelvin et al. teaches the apparatus of claim 1, wherein each said diagnostic component further comprises at least one user interface module adapted to receive said system performance data from said data analysis module (module interface Col. 23, Line 4-21) for communicating said system performance data of said distributed system to a user (a user interface for communication between units performance and the user Col. 13, line 40; Col. 4, Line 22; Col. 24, line 28; FIGs. 2-5, 7 and there respective details).

As per **claim 4**, Gelvin et al. the apparatus of claim 1, wherein at least one unit of said plurality of units further comprises a publish/subscribe server (PSS), and wherein said transceiver is adapted to communicate with said PSS to manage data flow on said network (server is used for communication between units Col. 24, Line 18; Col. 32, Line 25; see FIGs. 8, 21 and respective details)

As per **claim 5** Gelvin et al. the apparatus of claim 1, wherein said plurality of units comprises a plurality of transformers (plurality of data transformation to buffers and processors Col. 25, line 29; Col. 16, Line 21)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented
> and the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

3.   Claim(s) 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Gelvin et al. Patent No.: (US 7,020,701 B1) as applied to claim(s) 5, 1 respectively

above, and further in view of Mikurak Patent No.: (US 6,671,818 B1)

        Gelvin et al teaches all of the claimed limitations and further teaches multiple

types of sensors in the system to estimate the performance of units and further teaches

that the system can be sued in various engines, machines but does not teach a

combustion engine neither a gas byproduct sensor. However, Mikurak teaches a

plurality of sensors to obtain a plurality of measurements to read outputs from many

different devices and further teaches collecting data from engines and turbines via

aircraft engines, trains and various machines.

        It would have been obvious to a person having ordinary skilled in the art at the

time the invention was mad to have modified Gelvin et al. by the teaching of Mikurak

because multiple types of sensors used to read systems and machines have to include

a liquid, air, pressure, and gas sensors to effectively have the system running efficiently.

Also, combustion engines are included in aircraft, trains and other machinery.

As per **claim 9** Gelvin et al. the apparatus of claim 1, wherein said at least one performance characteristic is selected to measure the security of said units (measurements are used to find security methods to units in the system Col.1, Line 47; Col. 3, Line 46; Col. 36, Line 4).

As per **claim 10** Gelvin et al. the apparatus of claim 9, wherein said units comprise passenger airliners, and wherein said at least one performance characteristic is at least one of altitude, rate of altitude change, position, deviation from flight plan, velocity, and rate of velocity change (measurements are done to indicate performance Col. 41, Line 43; Col. 4, Line 15).

As per **claim 11** Gelvin et al. the apparatus of claim 1, wherein said network comprises a wireless network (wireless network nodes, wireless integrated network Col. 2, Line 22; Col. 3, Line 20, Col. 11, Line 10).

As per **claim 12** Gelvin et al. the apparatus of claim 11 wherein said wireless network is selected from the group consisting of radio waves, wireless LAN's, satellite networks and mobile telecommunications systems (radio frequency/communication, wireless LAN, satellite communication Col. 5, line 31; Col. 10, Line 37; Col. 68, Line 31; Col. 13, Line 53; FIG. 29).

As per **claim 13** Gelvin et al. the apparatus of claim 11, wherein said wireless network is configured to support communication among at least one active subset of said plurality of units, wherein said active subset comprises a subset of said plurality of units comprising said distributed system that are actively in cooperation and communication with each other. (a multi-cluster network to allow each subset of the communication network to cooperate with another, cooperative communication Col. 29, Line 27; Col. 17; FIGs. 3, 9. 26-30)

As per **claim 14** Gelvin et al. the apparatus of claim 1, wherein said network comprises a wired network (a plurality of wired networks is used among the communications Col. 14, Line 61)

As per **claim 15** Gelvin et al. the apparatus of claim 14, wherein said wired network is connected by a communications medium selected from the group consisting of metallic wire cables, fiber optic cables and Ethernets (communications among units in the sired network comprises twisted pair, fiber optic, and Ethernet cables Col. 19, Line 3-16; Col. 67, Line48-67).

As per **claim 16** Gelvin et al. the apparatus of claim 1, wherein said network is configured to be accessible via the Internet (resources of the distributed network are accessible through the internet, Abstract; Col. 1, Line 44; Col. 6, Line 28 FIGs. 12-13)

As per **claim 17** Gelvin et al. the apparatus of claim 1, wherein said at least one

sensor of said diagnostic component is selected from the group consisting of chemical

sensors, biological sensors, electrochemical sensors, mechanical sensors, vibration

sensors, stress sensors, thermal sensors, environmental sensors and financial

performance sensors (multiple types of sensors are used among variety of system to

estimate the performance of units Col. 51, Line 22).

4.   Claim(s) 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Gelvin et al. Patent No.: (US 7,020,701 B1) as applied to claim(s) 5, 7 respectively

above, and further in view of Mikurak Patent No.: (US 6,671,818 B1).

Gelvin et al teaches all of the claimed limitations and further teaches data

reduction method applied to raw data and data analysis module of the diagnostic

components adapted to the process but does not teach any statistical method applied to

the neither raw data nor correlations techniques to specify and estimate values to units

throughout the system. However, Mikurak teaches multiple statistical techniques and

correlations methods operated on raw data to estimate a correlation value and trend

analysis to units adapted to the process (Col. 70, line 23; Col. 150, line 5).

It would have been obvious to a person having ordinary skilled in the art at the

time the invention was mad to have modified Gelvin et al. by the teaching of Mikurak

because to operate such sensors and get the estimated values for performance

improvement, one must apply a statistical method to estimate those values and have

the data reduced as applied to a particular system.

As per **claim 30** Gelvin et al the apparatus of claim 28, wherein said distributed system comprises a plurality of security systems monitoring the security of an area, and wherein said performance characteristic is at least one of open door sensor status signals, fire sensor signals, water pressure sensor signals (multiple types of sensors are used among variety of system to estimate the performance of units Col. 51, Line 22), structural displacement signals, personnel inspection alert signals, baggage inspection alert signals, and security personnel alert signals (alert functions Col. 19, Line 19).

5.   Claims 20, 21-30 are related to the same limitation set for hereinabove, where the difference used is the phrase order and word interchanged within the claims itself. The citations from the prior art has been inserted where's necessary. Furthermore, the wordings of the claims were interchanged within the claim itself and this change does NOT effect the limitation of the above treated claims. The claim's limitations are repeated in many claims throughout the application. Even in the above treated claims many of the statements were just repeated from previously written claims within the application. Even though claims 20, 21-30 have been differently written from the above treated claims, yet the limitations did not change. As mentioned, claim 20 is the same as claim 1 where as part e. of the claim is the same as claim 3, claim 21 is the same as claim 1 where as the claim was taken from the limitation of claim 1, claim 22 is the same as claim 3, claim 23 is the same as claim 5, claim 24 is the same as claim 6, claim 25 is the same as claim 11, claim 26 is the same as claim 18, claim 27 is the same as claim

19, claim 28 is the same as claim 1 whereas the last part of the claim is claimed in claim 9, claim 29 is the same as claim 10, again there are no difference in limitations between claims 22-25, and the above treated claims respectively.

Response to Amendment

Applicant's arguments filed 12/11/2007 have been fully considered but they are not persuasive. The amendment submitted by the applicant does not overcome the rejection made by the examiner in the last office action. The applicant's argument has been considered carefully and does not provide the evidence for lack of motivation.

The examiner interpreted the claims to its broadest reason interpretation and has taken the language of the claims as written, more detailing from the specifications need to be inserted into the claims in regards to monitoring the performance of a distributed system to clearly point out the nature of the claimed invention. Accordantly amendment to the claims with additional language from the specification would place the application in better form and might overcome the art cited.

Also the applicant argues that the recited references do not disclose or teach "an apparatus for monitoring the performance of a distributed system, wherein said apparatus comprises a plurality of diagnostic components, and wherein each unit of said system comprises at least one of said diagnostic components" in contrary the references cited teach an apparatus for monitoring the performance of a system by

coupling the WINS NG network element or **node** to an environment to be monitored
(1002). Data is collected from the monitored environment using some combination of
the nodes through sensors that collect information about the nodes including raw data,
processes data, and node resource information.

      In addition the applicant recites that the references do not disclose, teach or
suggest that each diagnostic component further comprises at least one sensor for
sensing at least one unit performance characteristic and representing said at least one
characteristic as raw data, a data reduction module adapted to receive and process
said raw data produced by said at least one sensor to generate reduced data, a
transceiver adapted to receive said reduced data from said data reduction module and
to transmit and receive said reduced data to and from said plurality of units using said
network and a data analysis module adapted to accept and analyze said reduced data
from said transceiver to produce performance data related to said distributed system.
However, the references teach in each node there is a toolkit includes diagnostic tools
including a remote debugger, process viewer and other tools to collect all events and
event histories in a database to enable development of machine failure diagnostics.
The WING NG or **server** provides web services to users that which to acquire data
from remote nodes and their performance. A database is used for observations over
time from many pumps to develop better diagnostic and prognostic algorithms, which
are downloadable to the remote nodes, whether embedded in the machinery or not.
Diagnostic algorithms may be run on the database, or a human expert may view the
data from a remote location using standard Web browsing tools to avoid significant

damages where appropriate replacement and repair procedures executed. A node may

process diagnostic port data and transmit a reduced data set to a server by detecting

the data through a sensor where each node contains a sensor that detects and collects

data as directed. Sensor node algorithms estimate ranges to neighboring sensor

nodes using a time difference of arrival (TDOA) scheme. The results are used to set

up either linear or non-linear systems of equations using either distributed or

centralized algorithms. Continuous sensor signal processing is provided to enable

constant monitoring of events in an environment.

      Whereas the sensor nodes 802 include any combination of actuators, sensors,

signal processors, energy or power supplies, data storage devices, wireless

communication devices, wire line communication devices, and self-location

capabilities. The sensor nodes 802 are distributed in an environment 899 that is to be

monitored or controlled. That concludes the sensors could be used any system. A

complete sensor network may, in one embodiment, be viewed as a distributed but

active database that answers questions about the physical world, and acts upon the

questions through the actuators.

      The claims interpreted under its broadest reason interpretation whereas

monitoring the performance of a distributed system is not clear to what kind of a system

the applicant refers to, which could mean any system in a communication network. The

examiner interpreted the claims to its broadest reason interpretation and has taken the

language of the claims as written, more detailing from the specifications need to be

inserted into the claims in regards to monitoring the performance of a distributed system

to clearly point out the nature of the claimed invention. Accordantly amendment to the

claims with additional language from the specification would place the application in

better form and might overcome the art cited.

Prior Art

6.   The following prior art from the updated search made of record and not relied

upon:

-     Graichen et al. Patent No. (US 7,107,491 B2)

-   Wood Patent No. (US 6,424,930 B1)

Conclusion

7.   **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded

of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action

The examiner requests, in response to this Office action, support should be shown for language added to any original claims on amendment and any new claims. That is, indicate support for newly added claim language by specifically pointing to page(s) and line(s) in the specification and/or drawing figure(s). This will assist the examiner in prosecuting the application.

When responding to this office action, Applicant is advised to clearly point out the patentable novelty which he or she thinks the claims present, in view of the state of the art disclosed by the references cited or the objections made. He or she must also show how the amendments avoid such references or objections See 37 CFR 1.111(c).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abdelnabi O. Musa whose telephone number is 571-2701901. The examiner can normally be reached on Monday Thru Friday: 7:30am to 5:00pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Pwu can be reached on 571-2726798. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A.M

/JEFF PWU/
Supervisory Patent Examiner, Art Unit 2146